Role of exercise for those who have developed lymphoedema following breast cancer

Swelling or lymphoedema of the limb, trunk or breast, is considered the most problematic and dreaded concern following treatment for breast cancer, and has significant physical, psychological and social ramifications. Conservative incidence estimates suggest that 20-30% of breast cancer survivors will experience lymphoedema, with the majority of cases (up to 80%) occurring within the first year post-surgery. The aetiology of secondary lymphoedema seems to be multifactorial, with acquired abnormalities as well as pre-existing conditions being contributory factors. However, the relationships between patient, treatment and behavioural characteristics and lymphoedema risk are inconsistent, and of those that have established associations (e.g. more extensive surgery and radiation therapy), they alone are unable to accurately distinguish the at-risk population (1).

The fear of developing lymphoedema is widespread among breast cancer survivors and not surprisingly leads to the question of 'How can I reduce my personal risk?'. A range of secondary lymphoedema prevention guidelines are publicly accessible from a variety of sources. Very few scientific studies inform these guidelines, and as such, they are largely theory-based (1). Specifically, guidelines discourage participation in activities that may increase production of lymph (e.g., vigorous or repetitive use of a limb) and/or restrict lymph flow (e.g., wearing tight clothing). As Schmitz and colleagues highlights in this issue of *Exercise and Sport Sciences Reviews*, these guidelines are typically risk averse, and directly or indirectly encourage lower use (and likely contribute to reductions in overall physical activity levels) and subsequent deconditioning of the affected limb, if not the entire body.

There is, however, some evidence which suggests that participating in regular physical activity following breast cancer may reduce risk of developing lymphoedema (2, 3). Further, as outlined in Schmitz et al's paper, there is a growing body of work addressing the

role of exercise in the management of lymphoedema following breast cancer. Results suggest that, at worst, participating in regular moderate-intensity exercise, including resistance exercise of the upper-limb, neither initiates lymphoedema nor exacerbates existing lymphoedema. Regular exercise may also reduce lymphoedema 'flare-ups' for those with existing lymphoedema, as well as reduce the number and severity of associated symptoms. These are important findings since there is an overwhelming body of evidence that demonstrates engaging in regular exercise during and following treatment for breast cancer is an important means of minimising treatment-related side effects and optimising recovery (4, 5). Adding to this body of evidence are the results from the US Nurses' Health Study, which link post-breast cancer physical activity with reduced risk of cancer recurrence, cancer deaths and overall mortality (6).

So, while we still have much to learn with respect to exercise in the prevention and/or management of lymphoedema following breast cancer, having lymphoedema or being considered at-risk of lymphoedema is in itself not a contraindication to exercise. It is prudent for Exercise Physiologists to remain cautious when dealing with any special population, however, it is also important that caution does not exacerbate treatment-related side effects including lymphoedema. Maintaining communication with treating specialists and keeping a clear and updated record of symptoms and changes in symptoms (or lack thereof) with changes in their exercise program will help ensure the exercise prescribed is safe and appropriate. Finally, helping women, irrespective of whether they have lymphoedema or not, to become and stay active during and following breast cancer treatment will ultimately lead to better health outcomes in the short- and longer-term.

SANDI C HAYES

National Breast Cancer Foundation Senior Research Fellow

School of Public Health, Institute of Health and Biomedical Innovation, Queensland University of Technology, Queensland, Australia

References

1. Hayes SC. Review of research evidence on secondary lymphoedema: Incidence, prevention, risk factors and treatment. National Breast and Ovarian Cancer Centre, March, http://www.nbocc.org.au/bestpractice/resources/SLER247_reviewofresearchevid.pdf, 2008.
2. Hayes SC, Janda M, Cornish B, et al. Lymphoedema following breast cancer: Incidence, risk factors and effect on upper-body function. JCO. 2008; 26(32):3536-3542.
3. Box RC, Reul-Hirche, HM, Bullock-Saxton JE and Furnival CM. Physiotherapy after breast cancer surgery: Results of a randomised controlled study to minimise lymphoedema. *Breast Cancer Research and Treatment*. 2002; 75(1):51-64.
4. Schmitz KH, Holtzman J, Courneya KS, et al. Controlled physical activity trials in cancer survivors: a systematic review and meta-analysis. *Cancer Epidem Biomar* 2005; 14:1588-95.
5. Hayes SC, Spence R, Galvão D, Newton R. Australian Association for Exercise and Sport Science Position Stand: Exercise and Cancer Management. *J Science Sports Med Sports*. 2009; 12:428-434.
6. Holmes M, Chen W, Feskanich D, et al. Physical activity and survival after breast cancer diagnosis. *JAMA*. 2005; 293:2479-86.